REMARKS

By the foregoing amendments the specification has been amended on page 23 to clarify the description of the embodiment of the invention in Figure 9, claims 1-98 are cancelled and new claims 99-113 have been added. Thus, claims 99-113 are in the application with entry of the above amendments.

Claims 36, 49-53, 55-57, 62, 63, 67 and 69, 74-78 and 98 were rejected in the outstanding Office Action under 35 U.S.C. § 102(b) as being anticipated by the patent to Gung, U.S. Patent No. 6,491,801, as set forth on pages 2-5 of the Office Action. Claims 70-73 were rejected in the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Gung as applied to claim 69 and further in view of Chiang, et al., USPGPub 2001/0050220. The references were combined for the reasons and in the manner set forth on pages 5 and 6 of the Office Action. The propriety of these rejections has been rendered moot by the cancellation of the rejected claims by the above amendments.

New claims 99-113 are directed to the embodiment of the invention shown in Figure 9 of the application drawings. The new claims are believed to patentably define over the aforementioned references to Gung and Chiang, et al.

New claims 99-106 are directed to a method of manufacturing substrates with a vacuum plasma treated surface and new claims 107-113 are apparatus claims to a magnetron source and a magnetron treatment chamber which includes the magnetron source. The following explanations are offered to facilitate following the wording of the new claims with reference to Figure 9 of the drawings and the description in the specification, see particularly page

15, lines 23-27, page 23 et seq. and also references to Figures 1 and 2 in the specification.

According to Figure 9 there is provided a target 88 which is circular about the axis shown with a cross. There is generated in the volume between the substrate and the target surface a magnetic field pattern. This magnetic field pattern consist of a magnetron field pattern which, looking toward the target or sputtering surface, i.e. upon the plane of Figure 9, forms a substantially circular closed loop which is eccentric with respect to the axis (cross) and which extends along the target surface. This substantially circular closed loop pattern is generated between a first looping magnetic subarrangement with the extension 87_{01} and a second magnet subarrangement 87_i. See the attached copy of Figure 9 as amended which has been colored, the two magnet subarrangements have been respectively colored. Principally and with the exception of the radius-like extension the two magnet arrangements are similar to those of Figure 2, besides of the additional fact that the inner magnet subarrangement of Figure 2 is not a loop but a central area.

The magnetic field pattern, now considered parallel to the target or sputtering surface, does arc in a tunnel-like manner from an outer area of first magnetic pole to an inner area of second magnetic pole as shown by Fm in the representation of Figure 2 and Fm in Figure 9 as amended. Thereby, the inner area is confined with respect to the outer area by a locus L' as shown in Figure 9 in analogy to the locus L' of Figure 2, where the component of magnetic field, perpendicular to the target surface, is zero.

According to the shaping of the two magnetic subarrangements this locus is substantially circular as well about the center area of the two looping magnet subarrangements and has a respective radius-like extension towards the center area of the addressed loop.

Please note that both magnet subarrangements as respectively colored in the attached copy of Figure 9 need not and are not exactly circular, but only substantially circular. Therefore, it is hardly possible to define a "center" of these loops, but rather a "center area".

The unbalanced long-range field pattern which is asymmetric is generated very similarly to the embodiment of Figure 2 in that the magnetic flux along the distinct area (yellow in the enclosed Figure 9) which is part of the "outer area" as delimited by L' is increased. The distinct area extends along the target periphery and increases in a sickle-like shape the outer area as delimited by the address locus L'.

In order to clarify the description on page 23, line 15, by the above amendments the specification has been amended to recite that the outer magnetic subarrangement 87_o projects towards the respective edge of the target arrangement shown at 88. The overall arrangement of Figure 9 rotates about the axis at the central cross. See the description with respect to the magnetron treatment chamber of Figure 3 incorporating the magnetron source according to the present invention wherein as stated on page 16, lines 25-27, for example, the magnet arrangement is driven around rotational axis A_s by means of a motor drive as schematically shown at 14. New claims 99-113 are believed to patentably define over the aforementioned references. Accordingly, reconsideration and allowance of the claims is requested.

A Petition for Extension of Time is filed herewith to permit the timely filing of this Amendment After Final Rejection within the first month extension of time.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 635.43483X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

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APPENDIX